PROSPECTUS
FOR
THE DOCTORAL COURSE

Graduate School of System Informatics
KOBE UNIVERSITY
3rd Term, 2014
（Starting in April, 2014）

About Kobe University Graduate School of System Informatics

Graduate School of System Informatics, Kobe University was established in April 2010 when the Department of Computer Science and Systems Engineering was separated from the Graduate School of Engineering. Both Master's Program and Doctoral Program of the Graduate School of System Informatics are organized in the following three departments: Systems Science, Information Science, and Computational Science.

A Doctor of Philosophy in System Informatics, a Doctor of Philosophy in Engineering, or a Doctor of Philosophy will be granted upon completion of the Doctoral Course of Graduate School of System Informatics. Also, by completing the "Computational Science Intensive Course" offered by the Department of Computational Science, the student will be granted a Doctor of Philosophy in Computational Science.

Admission Policy of Graduate School of System Informatics, Kobe University

The Graduate School of System Informatics develops and expands new disciplines aimed at the creation of new knowledge and value, with each of the department fields - Systems Science, Information Science, and Computational Science – as its pillars and system information (meaningful information that exists within a wide range of systems, from natural to engineering and social) at its core, promoting education and research for fostering human resources possessing high creativity and an international mindset that make a positive contribution.

The Graduate School therefore actively accepts not only persons who have studied system technology, information technology, and computational technology in an engineering or information system undergraduate or graduate program, but also persons who have a high interest and desire to apply and expand the scope of these technologies in the various areas of specialization within the science, medical, cultural science, and social science fields.

In particular, the Graduate School largely welcomes persons who are equipped with high creativity, ingenuity, and logical thinking abilities, and who have a strong passion for exploring and further developing new "System Informatics". We also welcome students from workforce who have research experiences and accomplishments at companies or research institutes.

(Where to Contact Regarding the Admission of the Doctoral Course of Graduate School of System Informatics)

Student Affairs Section, Graduate School of Engineering, Kobe University
1-1, Rokkodai-cho, Nada-ku, Kobe   657-8501
Tel :   078-803-6350
e-mail: eng-kyomugakusei@office.kobe-u.ac.jp
Website of Graduate School of System Informatics: http://www.csi.kobe-u.ac.jp/
Website of Kobe University: http://www.kobe-u.ac.jp/

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Systems Science
Information Science
Computational Science

2014 April (3ʳᵈ Term)
Graduate School of System Informatics, Kobe University, the Doctoral Course Application Guidelines

1. Departments and the Number of Students to be Accepted

Department	No. of Students
Systems Science	A few
Information Science	A few
Computational Science	A few

（Note） The number of students to be accepted includes students who go on to a doctoral course from our master's courses, foreign students and students entering from workforce.

2. Qualification for Applicants

Those who meet one of the following requirements have the eligibility.

(1) Those who have obtained a master's degree or a professional degree or who are expected to do so by March 31, 2014.

(2) Those who have obtained a degree equivalent to a master's degree or a professional degree in a foreign country or who are expected to do so by March 31, 2014.

(3) Those living in Japan who have completed the correspondence course in a foreign-affiliated educational institution and obtained a degree equivalent to a master's degree or a professional degree or who are expected to do so by March 31, 2014.

(4) Those who have completed the education in a foreign-affiliated university within a school educational system of a foreign country in Japan and designated by the Minister of Education, Culture, Sports, Science and Technology limiting to those who have obtained a degree equivalent to a master's degree or a professional degree or who are expected to do so by March 31, 2014.

(5) Those who have been conferred, or are expected to be conferred, by March 31, 2014, a degree equivalent to a Master degree from the United Nations University which was promulgated by the General Assembly of the United Nations on December 11, 1972 and in accordance with the Agreement between Japan and the United Nations concerning the Act on Special Measures Incident to Enforcement of the Agreement between the United Nations and Japan regarding the Headquarters of the United Nations University (1976, Resolution 72, Article 1, Item2)

(6) Those who have completed the curricula at a foreign university, an educational institution which is designated under Item 4 or the United Nations University and are recognized as having academic abilities equivalent or superior to those given a master's degree by passing the examination and screening which are equivalent of the ones stipulated in Article 16, paragraph (2) of the Standards for Establishment of Graduate Schools (under Minister of Education, Culture, Sports, Science and Technology Ordinance No. 28, 1974).

(7) Those who are approved by the Minister of Education, Culture, Sports, Science and Technology (under Minister of Education, Culture, Sports, Science and Technology Public Notice No. 118, 1989).

(8) Those who are 24 years of age or older and are recognized by Eligibility Screening as having academic abilities equivalent or superior to those given a master's degree or a professional degree.

【Note】 Those who intend to apply under the requirement (7) or (8) above should refer to "8. Eligibility Screening" because they are subject to screening prior to their applications.

3. Application Procedures

（1） Period of application and how to submit the application

From January 7 (Tue) 2014 to January 14 (Tue) 2014 (except Saturday & Sunday)

When you submit in person, the office hour is Monday through Friday, from 9:00 to 12:00 & 13:00-17:00.

If you submit by mail, your application documents must be postmarked by Tuesday, January 14, 2014. On the envelope, write "Application Documents for the Doctoral Course" in red and mail it by "express registered mail". Make sure to include a self-addressed envelope (33.2 cm long×24 cm wide with a 390 yen stamp).

（2） Mailing Address:

Kobe University Graduate School of Engineering, Students Affairs Section
1-1, Rokkodai-cho, Nada-ku, Kobe 657-8501
Tel (078) 803-6350 (direct)

（3） Application documents

（A） Application form：Form designated by the Graduate School of System Informatics (Form No.1)

（B） ID for the examination (Form No. 3) and Certificate of payment Card (Form No. 4)

（C） Photograph：Affix two copies of photograph to the designated places on the application form and the ID for the examination.
The photograph should be 4 cm long and 3 cm wide and of upper body, taken within three months prior to submitting the application; in the picture, you should be looking straight ahead with your head uncovered.

（D） Curriculum Vitae：Form designated by the Graduate School of System Informatics (Form No.2)

（E） Certificate of (Prospective) Graduation of the master's degree program of graduate school (master course). If the Graduation Certificate indicated above does not show the degree you obtained, please submit a certificate of degree as well.

（F） Academic transcript（1）：Academic performance record created by the head of faculty or the principal of the university you graduated from

（G） Academic transcript（2）：Academic performance record created by the head of department or the principal of the graduate school you graduated from

（H） Entrance exam fee：¥30,000
Bring the attached form of JP bank (Form No. 5) and deposit the fee from the bank; make sure to affix the proof of receipt of postal transfer for entrance exam fee to the mounting card and send it together with the application documents. (When paying from overseas, please refer to the "Guide for overseas remittance of entrance examination fees" on page 9.) Japanese government-sponsored international students who will continue to be so after enrollment do not have to pay the fee on condition that they should submit the "Certificate of Japanese Government-sponsored International Student" from the university you are currently enrolled (unless you are a student of Kobe University).

（I） Master's thesis：

（a） Applicants who have completed a master's degree program (master course)

ⅰ） A copy of Master's thesis written either in Japanese or in English. If not available, please contact the Student Affairs Section of Graduate School of Engineering in advance and follow the instructions you will be provided.

ⅱ） Summary of master's thesis (A4)：A set of copies of the outline written in both Japanese (approx. 2,000 words) and English (approx. 1,200 words), with a cover sheet designated by the Graduate School of System Informatics (Form No. 6). For foreign applicants, only English copy suffices.

(b) Applicants who are expected to complete a master's degree program (master course) or applied for eligibility screening

　　　Research Progress Report (A4)：A set of copies of the report written in both Japanese (approx. 2,000 words) and English (approx. 1,200 words), with a cover sheet designated by the Graduate School of System Informatics (Form No. 6). For foreign applicants, only English copy suffices.

＊　Any reference material may be submitted along with either (a) or (b).

(J) Research proposal：A copy of A4 report written in Japanese (approx. 2,000 words) or English (approx. 1,200 words) with a cover sheet designated by the Graduate School of System Informatics (Form No. 7) indicating the details of your intended research and field.

(K) Resident Certificate：Foreign applicants should submit a Copy of Resident Certificate which is issued by the local municipality within 30 days, or a document that can take the place of the Resident Certificate. (Only for those residing in Japan)

(L) Self-addressed Forms：Write your postal number, address, and name in the form designated by the Graduate School of System Informatics (Form No.8).

〔Note〕

(1) No changes are allowed in the application documents once they have been received. The entrance exam fee will not be returned to an applicant except the case where the applicant did not apply or the application was not accepted.

(2) Make sure that documents created in a foreign language other than English should be accompanied by Japanese translation with the translation accreditation issued by the public institution such as the diplomatic facilities of Japanese or foreign government.
However in the case of submitting documents issued by Chinese universities, please make Credentials Reports sent by mail to the Student Affairs Section, Graduate School of Engineering, Kobe University (Registration Code: W600501) through CDGDC (China Academic Degrees & Graduate Education Development Center) by the deadline for applications. The documents which are obtained and submitted by applicants themselves are not accepted in principle. You need to send the documents issued by your university to CDGDC and pay the fee. Please make sure to have Credentials Reports issued in English. For more details, please refer to its website (http://www.cdgdc.edu.cn).

(3) Applicants should select a desired faculty member from the "Education and Research Fields, Research Subjects, and Faculty Members" and indicate the name in the admission application form. Without the name of the desired faculty member's name, the application documents will not be accepted. Also, **applicants should closely contact the expected academic supervisor and create a research proposal.**

(4) For those who submit a certificate of prospective graduation, please submit a certificate of graduation when you enroll. If the certificate does not show the degree you obtain, please submit a certificate of degree as well.

4. Screening Methods

Admission will be determined based on the results of academic examination together with the submitted documents.

The academic examination will take place through oral examination and interview.

(1) Content of a master thesis or research progress report
Examined as to whether or not the applicant has basic academic skills required for the course.

(2) English capability (for applicants graduated from a foreign university, both English and Japanese language skills are examined)
Examined as to whether or not the applicant has language skills required for the course.

(3) Content of research proposal
Examined as to whether or not the research plan meets the doctoral degree to be awarded.

5. Date and Place for the Interviews

Date	Place	Remark
February 4, 2014 (Tue)	Faculty of Engineering Building, Kobe University	Applicants will be notified of time and place for the interview at a later date.

【Access to Kobe University Faculty of Engineering Building】
Hanshin "Mikage" sta. JR "Rokkomichi" sta. or Hankyu "Rokko" sta.
Kobe Municipal Bus No. 16 (bound for Rokko Cable)
Shindai Kokusai Bunka Gakubu Mae, 5 min on foot to the Rokkodai Campus

6. Announcement of Successful Applicants

February 18, 2014 (Tuesday) 10:00 (scheduled)
The results will be announced both on the bulletin board and via the website of the Graduate School of System Informatics, Kobe University.
http://www.office.kobe-u.ac.jp/eng-ofc/kym/csi/jyuken.html
  ※Successful applicants will receive the acceptance letter. Inquiries will not be accepted via telephone.

7. Admission Procedure

(1) Admission procedure period and admission documents
   The admission procedure period is scheduled to be around mid March 2014. The details will be mailed to each successful applicant in late February 2014 with necessary documents for the procedure.
(2) Where the admission procedure is held
     Kobe University Centenary Commemorative House (Shindai Kaikan) (scheduled)
(3) Fees

Division		In Japanese yen	Remark
Admission fee		282,000	Admission fee should be paid during the admission procedure period.
Tuition fee	For semester	267,900	Refer to the "General Information for Successful Applicants" which will be sent in late February 2014. [In case the tuition is revised, the new fee is applied from the time of the revision.]
	Annual total	535,800	

   （Note） The amounts quoted above apply to 2013.

〔Note〕
(1) The admission of applicants who fall under the following items may be cancelled.
    (A) Applicants who made a false declaration
    (B) Applicants who did not meet the qualification requirements for applicants
(2) The admission fee already paid will not be returned for any reason.
(3) Admission fee and tuition fee are not required for Japanese government-sponsored international students who will continue to be so after enrollment.

8. Eligibility Screening

Those who intend to apply under the requirements "2. Eligibility Screening (7) or (8)" will be screened by the following documents submitted.

（1） Documents necessary for screening
  (A) Application Form for Examination of Qualification : the application form designated by the Graduate School of System Informatics (Form No. 9)
  (B) Graduation certificate created by the head of faculty or the principal of the university you graduated from.
  (C) Curriculum Vitae : the form designated by the Graduate School of System Informatics (Form No. 2).
  (D) History of research : created by immediate manager or representative of education/research institute or company where the research was conducted. If such a certification is unavailable, an application written by the applicant can substitute it. Use the form designated by the Graduate School of System Informatics (Form No. 10).
  (E) Research experience (A4): the outline of thesis that is "an equivalent of master's thesis". A set of copies written in both Japanese (approx. 2,000 words) and English (approx. 1,200 words), with a cover sheet designated by the Graduate School of System Informatics (Form No. 11). For foreign applicants, only English copy suffices.
  (F) Materials of research achievements : Index of thesis and separate print (photocopy acceptable), which are the basis of the research achievements, along with references of other achievements, if any. In case of collaborative research, attach the material clearly indicating the portion the applicant was in charge.
  (G) Research proposal (A4) : a copy of report indicating the field and research the applicant would like to explore, written either in Japanese (approx. 2,000 words) or English (1, 200 words) with a cover sheet designated by the Graduate School of System Infromatics (Form No. 7).
  (H) A self-addressed envelope (23.5cm long×12cm wide with a 350 yen stamp)

  Note that those who have completed a 6-year course of medical college, dental college, or veterinary medicine are not required to submit the abovementioned (D), (E) and (F).

(2) Period and place for submission
  Your application documents must be submitted in person or mailed (simple registered mail marked "Application Form for Examination of Qualification for the Doctoral Course of Graduate School of System Informatics" in red on the envelope) by Friday, December 13, 2013, to the Student Affairs Section, Graduate School of Engineering, Kobe University.
  Office hour (for those who hand in): Monday through Friday: 9:00-12:00 & 13:00-16:00
(3) Announcement of the screening results
  Successful applicants will be notified of the result by Monday, January 6, 2014.

9. Others
  1. Admission Fee Payment Exemption
    Applicants recognized as having extreme difficulties for the payment of the admission fee who fall under any of the following items and make the relevant application may be exempted from the payment of all or half the admission fee upon screening. (low income only is not qualified for the exemption.)
      （1）The person mainly responsible for paying school expenses for the applicant having passed away within the year prior to admission.
      （2）The applicant or the person mainly responsible for paying school expenses for the

applicant having suffered from flood or storm damage within the year prior to admission.

（3） The applicant having the reason corresponding to either of the above-mentioned and recognized by the university as having the reason.

2. Admission Fee Payment Deferral

Applicants who fall under any of the following items and make the relevant application may be able to defer payment of the admission fee for a certain period upon screening.

（1） Applicants, for whom payment by the payment deadline has become difficult due to financial reasons, and recognized as having excellent academic records.

（2） Applicants recognized for whom payment by the payment deadline has become difficult because the person mainly responsible for paying school expenses for the applicant have passed away within the year prior to admission.

（3） Applicants recognized for whom payment by the payment deadline has become difficult because the applicant or the person mainly responsible for paying school expenses for the applicant has suffered from flood or storm damage within the year prior to admission.

（4） Applicants recognized for whom payment by the payment deadline has become difficult due to unavoidable circumstances other than indicated above.

3. Tuition Fee Payment Exemption

Applicants who fall under any of the following items and make the relevant application may be exempted from the payment of all or half of the tuition fee upon screening.

（1） Applicants recognized as having difficulty for the payment due to financial reasons and having excellent academic records.

（2） Applicants, except those who fall under (1), recognized as having extreme difficulty for the payment due to any of the following circumstances.

 ⅰ The person mainly responsible for paying school expenses for the applicant having passed away within a year prior to admission (when concerning the exemption of tuition fee of the term of the admission).

 ⅱ The applicant or the person mainly responsible for paying school expenses for the applicant having suffered from flood or storm damage within a year prior to admission (when concerning the exemption of tuition fee of the term of the admission).

 ⅲ The applicant having the reason corresponding to either of the above-mentioned and recognized by the university as having the reason.

4. Handling of personal information

(1) Kobe University complies with the legislation such as "Act on the Protection of Personal Information Held by Independent Administrative Legal Entity" in using the personal information on applicants, and handles it based on the "Guideline on the Control of Personal Information Held by Kobe University".

(2) Personal information including the individual results of screening shall be used for screening (application procedures, conducting screening), announcement of successful applicants, enrollment procedures, and materials for reviewing the screening methods for the future.

(3) Personal information of only enrolled students provided for the application will be used for supporting the students after the enrollment (health management, tuition fee exemption or scholarship application, etc), educational purposes such as academic instruction, tuition-fee related affairs, and other corresponding work.

(4) Part of the operations may be outsourced to an agency. (Hereafter called "Agency"). In

the case of outsourcing the operations, all or part of the personal information provided will be provided to such an Agency with nondisclosure obligation within a certain limit necessary for the Agency to execute the operations.

5. Preventive Measures Against Measles and Rubella
   Submission of the "Immunization Certificate" of measles and rubella vaccines (or combination vaccine of both measles and rubella vaccines such as MR vaccine), or "Antibody Test Certificate" of measles and rubella

   To prevent a possible outbreak of Measles and Rubella on campus after enrollment, Kobe University requires all students to submit either one of the following certificates. Students entering in April must submit either one of them at the routine medical check-up for new students scheduled in early April, while students entering in October must do so at the routine medical check-up scheduled in October

   ①Vaccination Certificate given to students who were inoculated with measles and rubella vaccines, twice for each. (Immunization Certificate)
   ②Vaccination Certificate given to students who were inoculated with measles and rubella vaccines once for each within the last five years (Immunization Certificate)
   ③A document given to students who display adequate antibody titer in their blood to prevent developing measles or rubella within the last five years (refer to the following table). (Antibody Test Certificate)

   If the antibody titer level is below the requirement yet you cannot be inoculated with the vaccine for any reason such as illness or constitution, please present the document explaining why (for example, a certificate issued by the doctor).

   ＊ "Vaccination Certificate" refers to a document issued by an accredited medical institute that states the type of vaccine used and the date of inoculation.
   ＊ The MR vaccine (a combination vaccine of both measles and rubella) suffices for the vaccines of ① and ②.
   ＊ "Antibody Test Certificate" is a document issued by an accredited medical institute showing the measurement methods and values for the antibody titer in the blood specified in the below table, and the measurement values meeting the "protective antibody titer values".
   ＊ The combination of the documents ①, ②, and ③—for example, the combination of "Vaccination Certificate" for measles(①) and "Antibody Test Certificate" for rubella (③) —is accepted.
   The maternity passbook in which the type of vaccines and the date of inoculation are specified can be used as documents for ① or ②. If it only indicates the past medical history (the record of suffering the diseases) without the test results (a proof of the diagnosis), submit either "Antibody Test Certificate" (③), or "Vaccination Certificate" (① or ②) after the inoculation.
   ＊ "Vaccination Certificate", "Antibody Test Certificate", and "A document issued by the doctor stating you cannot be inoculated with the vaccines for reason such as illness or constitution" will not affect the admission decision of screening.

Methods and Judgment Standard for Values of Protective Antibody Titer in Blood
that Prevents Measles and Rubella

Division	Measurement Method	Judgment Standard	Remark
Measles	IgG－EIA PA NT	8.0 and above, positive 128 and above, positive 4 and above, positive	Has to show positive in one of the three measurement methods
Rubella	IgG－EIA HI	8.0 and above, positive 32 and above, positive	Has to show positive in one of the two measurement methods

Please use the methods indicated above to judge the titer in the blood for measles and rubella. The protective antibody value differs according to the measuring method. Also, note that the values are higher than the values considered as simply positive. If your antibody titer level is below these values, please take the required vaccination and submit "Vaccination Certificate".

When you go to a medical institute, please show this vaccination notification to the doctor and receive required certificates (in particular, the measurement methods and judgment standards for the antibody test).

For further information concerning the infection-control measures, contact
Medical Center for Students Health, Kobe University   TEL: 078-803-5245
Student Affairs Division, Kobe University   TEL: 078-803-5219

＊ If you have any questions concerning the application, please contact us below.

Students Affairs Section ,
Graduate School of Engineering,
Kobe University,
1-1 Rokkodai-cho, Nada-ku, Kobe 657-8501
TEL (078) 803-6350
e-mail: eng-kyomugakusei@office.kobe-u.ac.jp

"Guide for overseas remittance of entrance examination fees for the 2013 Doctoral Programs at the Graduate School of System Informatics, Kobe University"

The entrance examination fee is 30,000 Japanese yen. When paying from overseas, please be sure to make the payment in Japanese yen basis and remit 30,000 yen as the examination fee to the designated bank account mentioned below.
The remittance fees will be borne by the applicant, while Kobe University covers any other commissions including lifting charges or handling fees. No overseas remittance checks will be accepted.
A photocopy of the remittance request form must be attached to your application for admission.

Bank name	Sumitomo Mitsui Banking Corporation
Bank code	0009
Swift Code	SMBCJPJT
Branch	Rokko
Branch Code	421
Account No.	4142727
Recipient	Kobe University

In addition, please include the following information, if necessary.
Purpose of Remittance :   Entrance Examination Fee
Message to Payee, if any :   Please indicate "D63 : Applicant's full name"
                             ∗ Please put "D63" before your name.

◎Special Education System for Students Entering From Workplace

Recently, increasing number of engineers and researchers in workforce want continued education and training as well as obtaining doctoral degrees in graduate school. However, education programs of graduate schools usually require them away from their workplace to focus on the graduate program for three years, which is likely to limit their learning opportunities. On the other hand, the "Graduate School Foundation Standard, Article 14" stipulates that "When special educational measures are recognized necessary in the courses of the Graduate School, appropriate educational measures can be taken such as providing classes or research guidance during night or certain periods." considering the students from workplace. Based on these backgrounds, the Doctoral Course of Graduate School of System Informatics has conducted the special educational measures as stipulated by the statement.

The following items summarize the program.

1. Part of class by a faculty member upon an agreement of the member, and part of research guidance by academic supervisor upon an agreement of the supervisor, can be provided during night or a certain period.

2. If the academic supervisor recognizes that the thesis has been well under progress, and that superior facilities or equipment for the research are provided in the relevant company where outstanding performance can be expected, the student can conduct research within the company.

II   Overview of the Doctoral Course of Graduate School of System Informatics

１．Philosophy and Features of Curriculum

Our Doctoral Program promotes education and research for fostering researchers, higher education research facility faculty members, and advanced professionals having advanced independent research skills, high creativity, and an international mindset for identifying, exploring and resolving problems. To this end, the program establishes rigorous courses related to the student's doctoral thesis, requiring presentations over time in relation to investigational research, problem excavation, research planning, research implementation, research result organization, and methods for solving unresolved issues. The program also introduces a system of professional courses taught by multiple faculty members as well as cross-graduate-school courses, thereby fostering human resources equipped with advanced expertise and a wide perspective.

In an effort to aid our students in establishing careers as researchers specialized in computation science, we have established a "Computational Science Intensive Course" which provides the students with a coherent education from the Masters Program through the Doctoral Program.

Unlike a general course where the student completes the masters program and then enters the doctoral program, our intensive course is designed with the objective of the students obtaining a doctoral degree from the start. Based on the curriculum that complements various fields of education through collaboration with universities nationwide and short-term, intensive seminars, the course fosters human resources equipped with practical ability related to high-speed computation we well as highly professional knowledge and skills related to the fields of computational science.

The following explains the features of the curriculum we offer at the Doctor's Degree Program of the Graduate School of System Informatics.

２．Features of Doctoral Program Education

Introduction of Cross-Graduate-School Courses
We strive to foster interdisciplinary perspectives by offering students "Advanced Study on Advanced Integrated Science II", the cross-graduate-school course of five Graduate Schools of Kobe University (Science, Engineering, Agriculture, Marine, and System Informatics). In the Graduate School of System Informatics, we provide the "Fusion of IT Technology and Robotics Technology" and "Creation of Computational Science by High-Speed Computing" every other year.

Students from Workforce (Complying with the Graduate School Establishment Standard Article 14: Special Case)
We are willing to accept students from workforce in the Doctoral Program with an aim to fostering engineers equipped with a variety of highly advanced professional skills in System Informatics. To help such students learn while at work, we provide the system complying with the "Special Case of Education Based on School Establishment Standard, Article 14".

Establishment of Computational Science Intensive Course
In the Department of Computational Science of Graduate School of System Informatics, we have established the "Computational Science Intensive Course" in the doctoral course, which is coherent education covering a Masters Program and Doctoral Program. The curriculum in the Computational Science Intensive Course consists of subjects that enable students to obtain advanced knowledge and capability covering a wide range of expertise concerning high-speed computation and other computational science fields. To enhance the curriculum, we offer course subjects in collaboration with other departments and universities as follows.

Collaboration with Universities Nationwide
Computational Science involves extremely interdisciplinary education and research disciplines, which include various sciences and technologies such as the next-generation super computing technology as its basis. To provide systematic and specialized education covering broad subjects involving the computational science fields, it is essential to establish an educational system where the leading researchers in relevant fields belonging to other departments of Kobe University or other universities in Japan can provide the disciplines. To realize this, we have jointly established an education system nation-wide in collaboration with other universities, which enables us to provide the curriculum that compliment a variety of educational fields, and foster the human resources specialized in computational science.

Short-term Intensive Seminar
As a part of the official curriculum, we provide the short-intensive seminar for the practical education which

focuses on practical learning utilizing the super computer aiming for strengthening the practical capabilities in computational science such as advanced parallel programming technology, large-scale simulation technology, and visualization of computational results technology.

Measures Taken for New Students Enrolled from the Doctoral Program
We provide the course guidance at the time of enrollment to explain the basic philosophy of the curriculum, and the organization of the courses, so they can fully be aware of the requirements necessary for the course completion. In particular, the student who does not have the Master's Degree of System Informatics is instructed to enroll in some courses in the Masters Program if considered necessary, after the kind of the master's degree and the background of the student considered. As the courses of the doctoral program are closely related to the research subjects given in each education and research field, students are advised to mainly enroll in advanced studies offered by multiple faculty members in the course where the students belong. Also, students in the Computation Science Intensive Course in the Computational Science Department are encouraged to enroll in the advanced courses offered by the collaborative course according to the research subject.

Doctoral Degree Accreditation Process
The research progress presentation is conducted for research concept, research progress, and future research plan during both the 1st year and 2nd year to instruct the students to create appropriate doctor's thesis. In the 3rd year, the research result presentation is conducted, and if the research result is acknowledged as superior, the student can proceed to submitting the doctoral thesis and reviewing (including the doctoral thesis presentation). The entire department makes concerted effort in conducting research progress presentation, research results presentation, and the doctoral thesis presentation so that each department, or the Graduate School of System Informatics when necessary, can be involved in guiding the students' research. For those who are finished early, the research result presentation and the doctoral thesis presentation are conducted during the 1st or the 2nd year.

3．**Departments and Divisions of the Graduate School of System Informatics**

The Graduate School of System Informatics consists of three departments: Systems Science, Information Science, and Computational Science.

（1）Systems Science

The Department of Systems Science provides the student with the interdisciplinary education and research on theories and technologies required for system analysis, design, configuration and operation. Thus, in the Masters Program, the department provides the student with the theory of systems approach methodology and problem-solving skills for effectively practicing analysis and synthesis aiming for fostering the human resources with high creativity and an interdisciplinary perspective. In the Doctoral Program, the student will deepen their specialized fields; also, we aim for fostering researchers with advanced skills capable of creating new theories and technologies to integrate different fields.
To this end, the Department of Systems Science consists of the following three divisions as its pillars: Fundamentals of Systems Science, Innovations of Systems Science, and Applied Systems Science.

Fundamentals of Systems Science
The Division of Fundamentals of Systems Science provides the student with an education and research experience in the theoretical basics and methodologies for system analysis, design, construction, and operation. The division includes four research groups: Systems Planning, Optimum System Design, Applied Optics, and Systems Control.

Innovation of Systems Science
The Division of Innovation of Systems Science provides the student with an education and research experience in methodologies and techniques related to the realization of systems having near human intelligence, and system theories for intelligent system design. The division has three research groups: Mathematical System Analysis, System Analysis, and Intelligent Systems.

Applied Systems Science
The Division of Applied Systems Science provides the student with an education and research experience in system application methodologies and techniques, with a focus on the applicable aspects of system science and engineering theories and methodologies, targeting the construction theories of sensor information systems for

recognizing system environments, theories of recognition and understanding of a three- dimensional world, rational planning and control theories for systems, and theories of system application methodology and techniques for FA systems and industrial robots.

（2）Information Science

The Department of Information Science provides the student with education and research on establishing mathematical information infrastructure theories, exploring new methodologies for information processing, and developing the cutting-edge information application techniques. Thus, in the Masters Program, we aim to foster the human resources having a wide perspective and the capability of taking leadership roles in wide scopes of discipline—from basic theories in relation to information science that contributes to developing, processing, and utilizing valuable information, to the social application thereof. In the Doctoral Program, we aim to foster researchers equipped with advanced problem-setting, exploring, and solving capabilities as well as high creativity in these academic fields.

To this end, the Department of Information Science consists of the following three divisions as its educational pillars: Foundation of Information Sciences, Intelligent Informatics, and Kansei and Media Art.

Foundation of Information Sciences

The Division of Foundation of Information Sciences provides the student with an education and research experience in mathematical information infrastructure theories, and elementary technologies for information processing. The division has three research groups: Mathematical Logic and Statistics, Processor Architecture, and Software Science.

Intelligent Informatics

The Division of Intelligent Informatics provides the student with an education and research experience in methodologies and algorithms for information expression, acquisition, and processing, and applications thereof. The division provides the following four research groups: Integrated Information Systems, Knowledge and Information Processing, Media Informatics, and Emergent Computing.

Kansei and Media Art

Research and development of Kansei and media art systems focuses on display and actuation technologies that allow precise information transmission through multiple I/O methods upon understanding the circumstances. Our lecture mainly covers advanced technologies on human robot interaction, voice interaction, and haptic interaction.

（3）Computational Science

The Department of Computational Science provides the student with an education and research experience in technical foundation of high-speed computation and understanding and solving the natural events based on a computational approach and the application thereof. Thus, in the Masters Program, we aim to foster the human resources equipped with broader knowledge and high creativity in the fields of massively parallel computation and algorithm, and the application thereof. In the Doctoral Program, we aim to foster researchers who are excel in capability of creating new theories and techniques related to the high-speed computation; and exploring, developing, and practicing the innovative science and technology taking advantage thereof.

To this end, the Department of Computational Science consists of the following five divisions as its educational pillars: Fundamentals of Computational Science, Innovation of Computational Science, Advanced Computational Science, Applied Computational Science and Large scale computational science.

Fundamentals of Computational Science

The Division of Fundamentals of Computational Science provides the student with an education and research experience in mathematical methodologies and massively parallel information processing, which serve as the fundamentals of computational science. The division includes the following four research groups: Computational Mathematics, Computational Intelligence, Parallel Algorithm and Software, and Scientific Visualization.

Innovation of Computational Science

The Division of Innovation of Computational Science provides the student with an education and research experience in computational science and computational engineering, which serve as new scientific methodologies in the science and engineering field.

The division includes the following four research groups: Computational Chemistry, Computational Biology, Computational Robotics, and Computational Engineering

Advanced Computational Science
The Division of Advanced Computational Science research group provides the student with an education and research experience in simulation using the next generation supercomputers, with the aim of achieving comprehensive understanding of extremely complex life processes and making prediction possible through large-scale information processing.

Applied Computational Science
   The Division of Applied Computational Science provides the student with an education and research experience based on large-scale, practical subjects such as the physical process of climatologic and meteorological fluid system simulation and algorithms, and predictions and actual results based on the incorporation thereof, and discrete system simulation for the substances that form crust.

Large scale computational science
The large scale computational science research group educates concerning various advanced computational research fields from the system software for the computer science to complex phenomena unified solution research for the purpose to teach the large scale computational science using super-computers like the K computer at the RIKEN Advanced Institute for Computational Science.

4. Education and Research Fields, Research Subjects, and Faculty Members

（1）Department of Systems Science

<div align="right">As of November 1, 2013</div>

Divisions	number	Education/Research Fields	Research Topics	Staff	
Fundamentals of Systems Science	S-1	Systems Planning	Operational Research, Production Systems Engineering, Social Systems Engineering, Optimisation, Multi-Agent System, Management Engineering, Decision Support Theory, Service Engineering, System Simulation, Medical Engineering	Kaihara Toshiya	Professor
				Fujii Nobutada	Associate Professor
	S-2	Optimum System Design	Optimization, Optimum Structural Design, Optimal Control, Robotics, Adaptive Structure, Nonholonomic System, Human Interface, Image Analysis, Image Recognition, Biomechanics	Tada Yukio	Professor
	S-3	Applied Optics	Instrumentation Optics, Information Photonics, Computational Optics, Physical Optics, Image Processing, Optical Tomography, Optical Data Storage, 3D Display System, Optical Supercomputing, Quantum Information Science	Matoba Osamu	Professor
				Nitta Kouichi	Associate Professor
	S-4	Systems Control	Control Systems Theory, Systems Optimization, Computer Aided Design of Control Systems, Robust Control, Advanced Control, Optimal Control, Vibration Control, Hybrid Systems, Large Scale Systems, Modeling	Ohta Yuzo **	Professor
				Masubuchi Izumi	Associate Professor
Innovation of Systems Science	S-5	Mathematical System Analysis	Optimal Control Theory, Inverse Problem, Differential Operator Theory, Nonlinear PDE's, Numerical Analysis, Distributed Control System Theory, Infinite Dimensional Dynamical System, Distributed Stabilization Theory, Variational Problem	Nambu Takao **	Professor
				Sano Hideki	Professor
				Akagi Goro	Associate Professor
	S-6	System Analysis	Condition Monitoring, Safety Management System, Maintenance Science, Inverse Analysis, Intelligent Robotics, Sensor Fusion, Robot-Human Interaction, Tele-Operation System, Soft Computing	Kojima Fumio	Professor
				Kobayashi Futoshi	Associate Professor
	S-7	Intelligent System	Intelligent Decision Making, Virtual Reality, Mixed Reality, Medical Engineering, Computer Aided Diagnosis and Treatment	Hatono Itsuo	Professor
Applied Robot Science (Collaborative Program) *	S-8	Applied Robot Science	Manufacturing System, Instrument and Control System, Motion Planning System, Robot Control System, Human Interface System	Yoshikawa Shoji	Professor

<div align="right">**The faculty members are scheduled to retire in March, 2015.</div>

＊For the education and research fields of the collaborative program, the research may be conducted at somewhere other than Kobe University. If you would like to enroll in a collaborative program, contact us beforehand for the details. (Contact： Kobe University Graduate School of Engineering, Students Affairs Office)

（2）Department of Information Science

As of November 1, 2013

Divisions	number	Education/Research Fields	Research Topics	Staff	
Foundation of Information Sciences	I-1	Mathematical Logic and Statistics	Mathematical Logic, Mathematical Statistics, Foundations of Mathematics, Foundations of Informatics, Axiomatic Set Theory, Model Theory, Proof Theory, Computability Theory	Kikyo Hirotaka	Professor
				Fuchino Sakae	Professor
				Kikuchi Makoto	Associate Professor
				Brendle Joerg	Professor
	I-2	Processor Architecture	Processor architecture, VLSI system, VLSI memory, Low power design, Media processing	Yoshimoto Masahiko	Professor
				Kawaguchi Hiroshi	Associate Professor
	I-3	Software Science	Logic Programming, Constraint Programming, Declarative Programming, Programming Language Processing Systems, Theorem Provers, Combinatorial Optimization, SAT	Tamura Naoyuki	Professor
Intelligent Informatics	I-4	Integrated Information Systems	VLSI Systems and Interaction with Operation Environments, Ubiquitous Applications, Embedded Systems, Wireless Communication Devices, Mixed Signal VLSI Design	Nagata Makoto	Professor
	I-5	Knowledge and Information Processing	Biodata Processing, Agricultural Data Processing, Information Retrieval, Content Analysis, Network Analysis, Data Integration, Data Mining, Statistical Machine Learning, Large-scale Data Analysis	Ohkawa Takenao	Professor
				Eguchi Koji	Associate Professor
	I-6	Media Informatics	Speech/Image/Movie Recognition, Media Integration, Semantic Understanding, Dialogue/Conversation Processing, Intelligent Communication, Universal Communication, Disaster Information Processing, Music Information Processing, Signal Processing, Pattern Recognition	Ariki Yasuo	Professor
				Takiguchi Tetsuya	Associate Professor
	I-7	Emergent Computing	Emergent System, Interaction, Optimization Model, Adaptation/Learning, Network Resource Allocation, Autonomous Decentralized Networks	Tamaki Hisashi	Professor
				Ohta Chikara	Associate Professor
Kansei and Media Art (Collaborative Program)＊	I-8	Kansei and Media Art	Ambient Intelligence, Human-Robot Interaction, Speech Signal Processing, Linguistic/Paralinguistic Processing, Robot audition, Human Interface, Telecommunication, Teleoperated Android, Cloud Network Robot	Hagita Norihiro	Professor
				Ishi Carlos Toshinori	Associate Professor
				Nishio Shuichi	Associate Professor

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（3）Department of Computational Science

Divisions	number	Education/Research Fields	Research Topics	Staff	
Fundamentals of Computational Science	C-1	Computational Mathematics	Numerical Analysis, Matrix Computations, Parallel Computing, High Performance Computing, Automatic Performance Tuning, Computational Finance	Yaguchi Takaharu	Lecturer
	C-2	Computational Intelligence	Artificial Intelligence, Machine Learning, Multimedia Processing, Data Mining, Text Mining, Information Retrieval	Uehara Kuniaki	Professor
				Seki Kazuhiro	Associate Professor
	C-3	Parallel Algorithm and Software	Parallel Algorithm, Simulation Code Acceleration, Master-Worker Programming, Software Engineering, Service/Cloud Computing, Ubiquitous Computing	Yokokawa Mitsuo	Professor
				Nakamura Masahide	Associate Professor
	C-4	Scientific Visualization	Data Visualization, MHD Simulation, Geodynamo Simulation, Solar MHD simulation, Virtual Reality Visualization	Kageyama Akira	Professor
Innovation of Computational Science	C-5	Computational Chemistry	Advanced Generation and Optimization of High-Speed Programs, Massively Parallel Computation Algorithms, Automated Build, Pattern Mining, Visualization of Biological Molecules, Scalable Molecular Orbital (MO) Theory for Large Molecules, Explicitly Correlated Electronic Structure Theory for Highly Accurate Calculations, QM/MM Methods	Ten-no Seiichiro	Professor
	C-6	Computational Biology	Biomolecular System, Ab Initio Simulation, Multiscale Simulation, Large-Scale Parallel Computation, Medical and Pharmaceutical Applications, Molecular Dynamics Method, Molecular Orbital Method, Monte Carlo Method	Tanaka Shigenori	Professor
				Fujimoto Kazuhiro	Lecturer
	C-7	Computational Robotics	Environment Adaptive Robotics, Cognitive Motion, Human Interface, Bio-mimetic System, Care Support Engineering, Computational Robotics	Luo Zhi-Wei	Professor
				Nagano Akinori	Associate Professor
				Togashi Yuichi	Lecturer
	C-8	Computational Engineering	Space Environment Simulation, Space Plasma-Satellite Interaction, Multiscale Electromagnetic Particle Simulation, Super Large Antenna in Space, Space Communication, Space Radar, Space Solar Power Satellite, Wireless Power Transmission via Microwaves, Laser Power Transmission	Kaya Nobuyuki **	Professor
				Usui Hideyuki	Professor
Advanced Computational Science (Collaborative Program) *	C-9	Advanced Computational Science	Biomodel, Organ Model, Cellular Model, Computer Simulation, 3D Data Analysis, Medical Graphic Process, Medical Bioengineering, Paralellcomputing, High Performance Computing	Himeno Ryutaro	Professor
				Yokota Hideo	Professor
				Onami Shuichi	Associate Professor
Applied Computational Science (Collaborative Program) *	C-10	Applied Computational Science	Earth Simulator, Multiscale Simulation, Atmosphere-Ocean Coupled General Circulation Model, Typhoon Simulation, Nonhydrostatic/Hydrostatic Ocean Model, Earth Sciences, Lithosphere Dynamics, Earthquakes, Plate Motion, Discrete Element Method	Sakaguchi Hide	Professor
				Kuwano Akira	Associate Professor
Large scale computational science (Collaborative Program) *	C-11	Large scale computational science	simulations on complex systems such as climate, first-principles molecular dynamics, pre-and post-processing techniques, numerical software library, quantum-based material science, lattice quantum chromodynamics, parallel image generation technology, particle tracking algorithm development, system of linear equations, eigenvalue calculation, high speed Fourier transform theory, non-linear equations, nanoscale level, quantum many-body systems, collective quantum phenomena, strongly correlated materials, numerical computational methods, algorithms, computer simulation code, quantum field theory, the dynamics of the quark, lattice QCD	Ono Kenji	Professor
				Imamura Toshiyuki	Professor
				Nakajima Takahito	Professor
				Tomita Hirofumi	Professor
				Sota Shigetoshi	Associate Professor
				Nakamura Yoshifumi	Associate Professor

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